# **CHAPTER II**

MODELS 9301, 9302, 9302E, 9303E, 9600, 9601 ONLY

# SECTION 1 TROUBLESHOOTING

#### STEERING PROBLEMS

PROBLEM	CAUSE	REMEDY
Hard Steering	Low Tire Pressure	Check Pressure - Chapter II - Section 1
w .	Lack of Lubricant	Lubricate - Chapter II - Section 1
	Bearings and/or Bushings worn	Steering Disassembly and Inspection - Chapter II - Section 2
	Tie Rods Bent	Straighten or Replace - Chapter II - Section 2
	Steering Gear Broken	Disassembly and Replacement Chapter II - Section 2

#### MOWER PAN AND BLADE PROBLEMS

PROBLEM	CAUSE	REMEDY
Blade Won't Turn	Belt Off Pulleys	Replace - Chapter II - Section 3
	Belt Damaged	Replace - Chapter II - Section 3
	Blade Nut Loose	Tighten - Chapter II - Section 1 - Refer to Spec. Sheet Torque
Blade Won't Disengage	Blade Brake Not Working	Check Blade Brake Tension Chapter II - Section 3
Blade Leaves Swirl Marks in Lawn	Pan Unlevel	Correct Pan Level - Chapter II - Section 3
	Blade Unlevel or Bent	Correct Pan Level - Chapter II - Section 3

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#### MOWER PAN AND BLADE Cont.

PROBLEM	CAUSE	REMEDY
Belt Comes Off Belt Keeper Loose (Rear)		Tighten - Chapter II - Section 3
	Broken Belt	Replace - Chapter II - Section 3
	*Top Idler Pulley Broken or Bent	Replace - Chapter II - Section 3
	*Intermediate Shaft Loose	Tighten - Chapter II - Section 3
	Rear Idler Spring Broken	Replace - Chapter II - Section 3
	Rear Idler Arm Broken	Replace - Chapter II - Section 3
Belt Comes Off (Front)	Broken Belt	Replace - Chapter II - Section 3
·	*Bottom Idler Pulley Broken or Bent	Replace - Chapter II - Section 3
	*Intermediate Shaft Loose	Tighten - Chapter II - Section 3
	Idler Arm Broken or Bent	Replace - Chapter II - Section 3
	Belt Pulley Bent or Broken	Replace - Chapter II - Section 3

<sup>\*</sup>Diagram shown only.

### DRIVE PROBLEMS

PROBLEM	CAUSE	REMEDY	
Mower Will Not Propel	Improper drive adjust- ment	Adjust - Chapter II - Section 4	
	Drive Disc Polished	Score - Chapter II - Section 4	
	Drive Disc Broken	Repair or Replace, Chapter II - Section 4	

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#### DRIVE PROBLEMS Cont.

PROBLEM	CAUSE	REMEDY	
Mower Will Not Propel Cont.	Rubber Drive Roller Worn or Damaged	Replace - Chapter II - Section 4	
	Chain Loose	Adjust - Chapter II - Section 4	
	Chain Broken	Repair or Replace, Chapter II - Section 4	
	Transmission Rod(s) Bent	Repair or Replace, Chapter II - Section 4	
	Differential Broken	Repair or Replace, Chapter II - Section 4	
	Sprocket Worn or Broken	Replace - Chapter II - Section 4	
	Will Not Drive In Reverse	Check Reverse Booster Spring - or Disc. Compression Spring - Chapter II - Section 4	
	Clutch Pedal Must Be Pulled Back for More Drive	Disc Compression Spring Adjust - Chapter II - Section 4	

The following check list will assist in locating the problem source.

#### **FUEL PROBLEMS**

#### **FUEL TROUBLE SHOOTING**

TROUBLES	CAUSES	REMEDIES
Engine will not start	a. Fuel tank empty	a. Fill tank
	b. Water in fuel	b. Drain fuel from tank and carburetor and replace with fresh fuel
	c. Old fuel in tank forms gum to plug up fuel line	c. Empty out old fuel and clean out fuel line
	d. Shut-off valve closed	d. Open valve

### FUEL PROBLEMS Cont.

TROUBLES	CAUSES	REMEDIES
Engine slows down and stops	a. Vent hole in fuel tank cap plugged	a. Unplug hole
	b. Fuel line or strainer clogged	b. Clean out fuel line or strainer
	c. Fuel tank runs dry	c. Refill tank

#### IGNITION PROBLEMS

### SPARK PLUG TROUBLE CHART

PLUG CONDITION	CAUSES	RECOMMENDATION
Black carbon or sooty deposit	a. Breaker points dirty or out of adjustment	a. Clean and adjust gap
	b. Weak condenser	b. Check and replace if weak
	c. Incorrect plug	c. Install correct plug
Pitted or burned points, white, light tan or blistered de- posits. Rapid wear of points	a. Incorrect plug	a. Install correct plug
Cracked or broken plug	a. Careless installation of plug	a. Replace plug
Cracked or broken insulator on lower end of plug	a. Center electrode strained when regapping plug	a. Replace plug
Widening of gap	a. Normal wear	a. Clean and regap

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## **SPECIFICATIONS**

### **LUBRICATION SPECIFICATIONS**

Grease For Front Axle & King Pin Spindle	Lawn-Boy "A" Grease or
• •	Multiple Purpose, Automotive Grease
Front Wheel Bearings	Lawn-Boy "A" Grease or
ŭ	Multiple Purpose, Automotive Grease
Differential	Lawn-Boy "A" Grease or
	Multiple Purpose, Automotive Grease
Hexshaft - Drive Roller	

#### **BOLT AND NUT TORQUES**

King Pin to Tie Rod Nuts
Steering Casting Bolts
Steering Gear Set Screw
Engine Mounting Bolts
Engine Pulley Bolt
Drive Disc Screws 90 inch pounds
Belt Pulley Nut
Blade Nut
Drive Roller Nuts 90 inch pounds
Hexshaft Bearing Retainer Plate Screws
Wheel Bearing Bolts
Differential Bolts
Wheel Nuts Adjustable
·

#### **ENGINE SPECIFICATIONS**

-8 A7N

SERVICE BULLETIN REFERENCES ..... 11-21

		26''	30''
Pront Size		15-17 P.S.I 480/400x8	15-17 P.S.I. 16x5.50-8
BATTERY	SPECIFICA	ATIONS	

11-22 ..... SERVICE BULLETIN REFERENCES

### **SECTION 2**

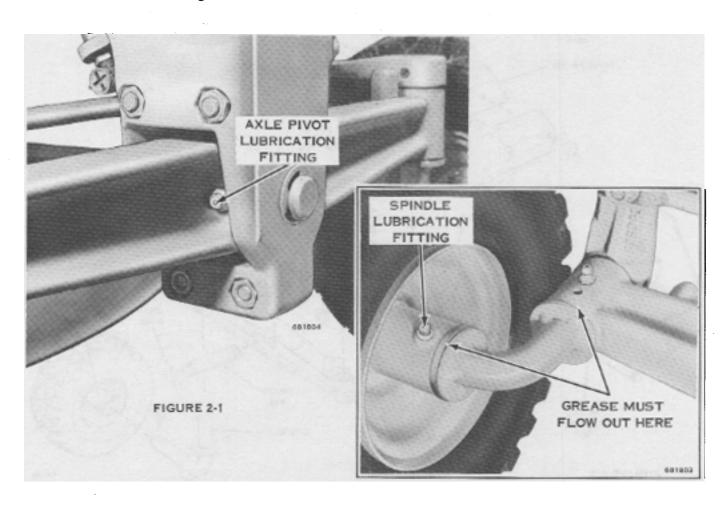
### HOW TO REPAIR AND REPLACE

#### **STEERING**

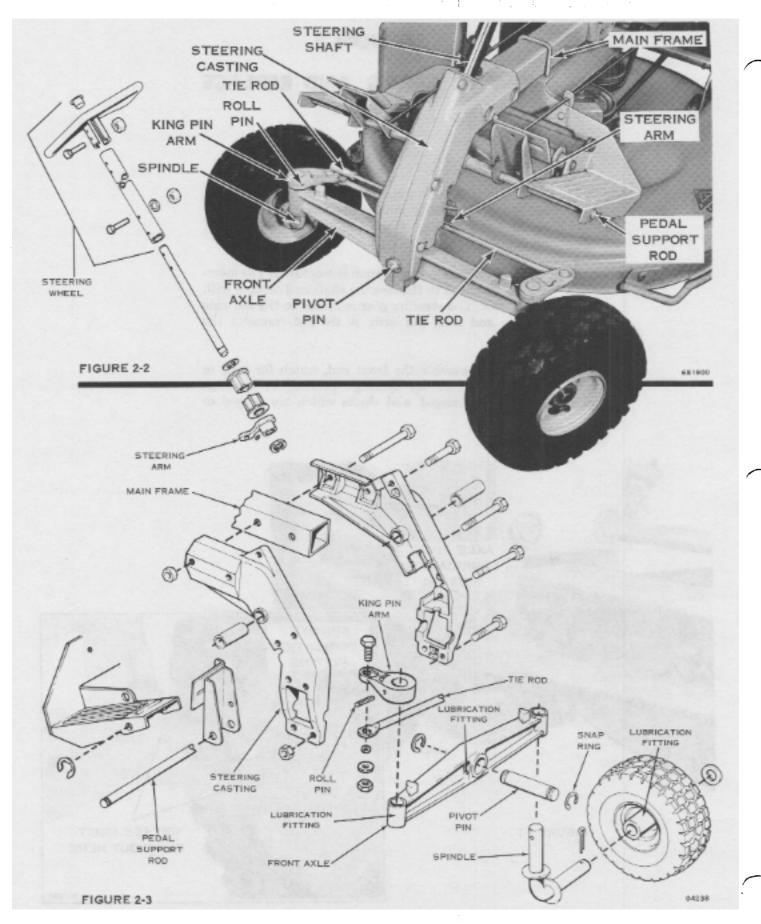
To insure trouble-free operation, use a grease gun and apply a good quality automotive chassis lubricant to the five zerk fittings. (Figure 2-1). Or Lawn-Boy "A" grease.

A positive type steering system is employed. The steering arm is keyed to the steering shaft and secured with a setscrew. The steering gear is linked to the left side spindle and king pin arm. A tie rod connects the wheels.

As you disassemble the front end, watch for bent or mis-shaped rods, dry bearings, bearings or bushings which are damaged, and shafts which are gouged or grooved.

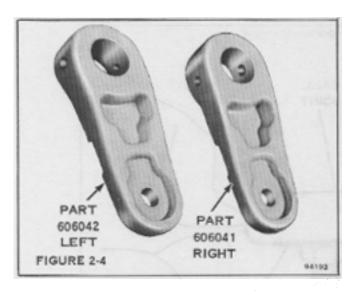


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#### STEERING DISASSEMBLY



# SPINDLE AND/OR KING PIN REMOVAL

Disconnect the spark plug lead. Remove the battery, (electric start models only.) Stand mower on tilt (knurfing) bar.

Remove front wheel. Remove tie rods from king pin arm. Drive out roll pin. Remove spindle from steering casting. See Figures 2-3 and 2-4.



NOTE

King pin arms are not identical (Figure 2-4). Care should be taken to reinstall them properly.

#### FRONT AXLE REMOVAL

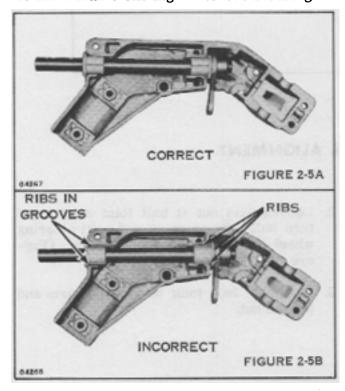
Disconnect the spark plug lead. Remove the battery (electric start models only.) Stand mower on tilt (knurfing) bar. Remove spindle and king pin. (See spindle and/or king pin removal above.)

Remove snap ring from pivot pin. Drive pivot pin from steering casting and axle. Remove axle.

#### STEERING CASTING REMOVAL

Disconnect spark plug lead. Remove battery, (electric start models only.) Stand mower on tilt (knurfing) bar. Remove front axle.

Remove steering wheel and pedal support rod. Remove two bolts securing steering casting to main frame casting. Remove steering casting from main frame.



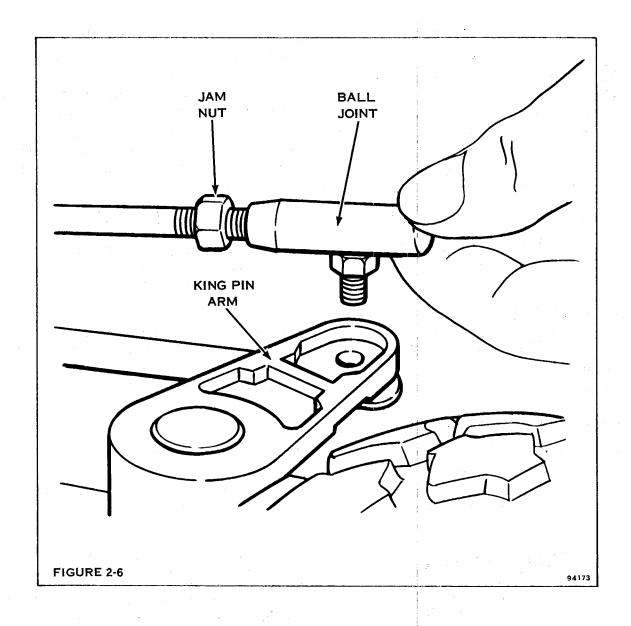
IMPORTANT NOTE: Later model bushings contain two ridges which match the grooves in the frame castings. During reassembly the bushings MUST BE placed in the same position they were removed to prevent binding of the steering shaft. See Figures 2-5A and 2-5B. Loosen the setscrew on the pitman arm. Using expansion pliers remove the retaining ring and remove pitman arm.

#### STEERING CASTING DISASSEMBLY

Disconnect spark plug lead. Remove battery, (electric start models only.) Stand mower on tilt (knurfing) bar. Remove steering casting.

Remove all bolts holding casting together. Casting halves can then be separated (Figure 2-5). Pull steering shaft from casting. Note plastic bushings are ribbed for placement in casting—do not clean with solvent. The steering gear is held to the steering shaft with a retainer ring and a setscrew.

SERVICE BULLETIN REFERENCES .....



#### STEERING WHEEL ALIGNMENT

If steering wheel does not line up properly with front wheels, it can be aligned as follows:

- 1. Remove nut securing ball joint to king pin arm.
- 2. Loosen jam nut at ball joint socket and turn ball joint on or off rod until steering wheel is aligned with front wheels. (Figure 2-6.)
- 3. Assemble ball joint to king pin arm and tighten nut.

11-26 ..... SERVICE BULLETIN REFERENCES

#### **SECTION 3**

#### **ADJUSTMENTS**

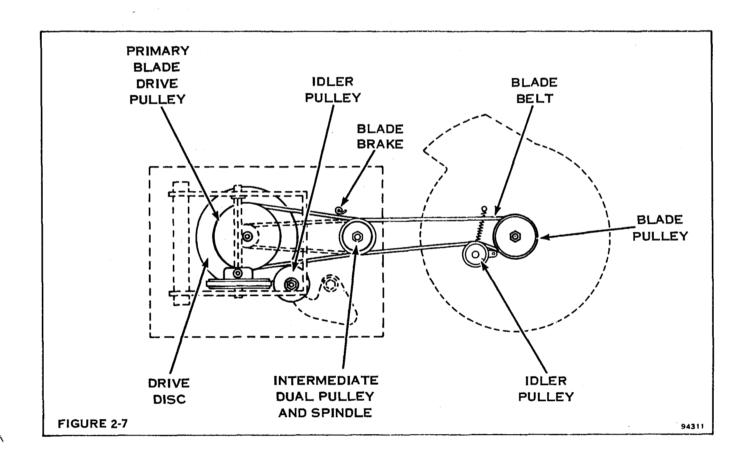
#### POWER FOR DRIVING THE MOWER BLADE

To effect transmission of motive power to the cutting blade, two V-belts are used.

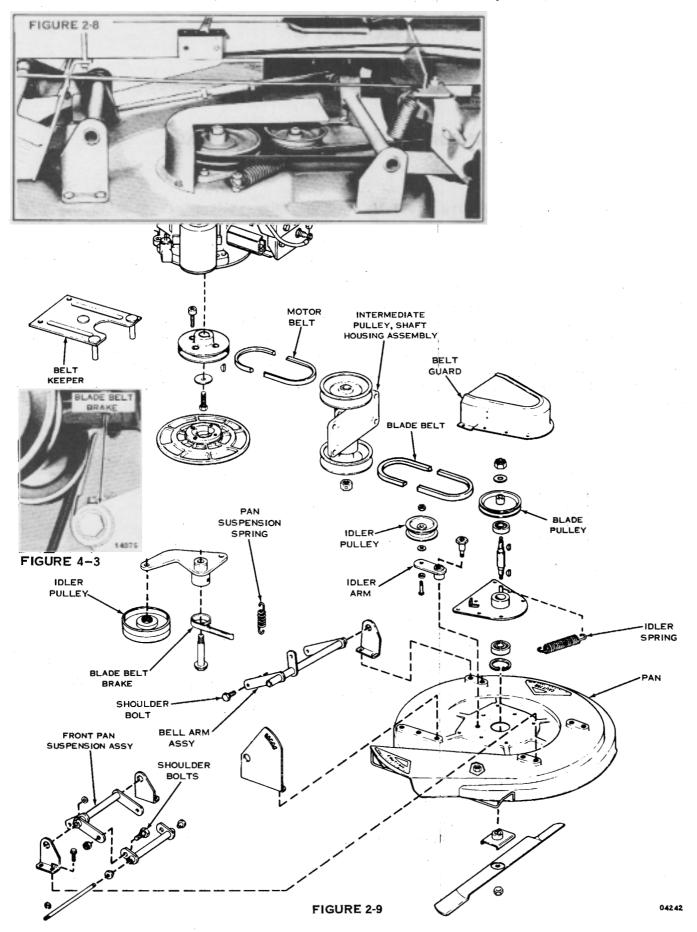
The primary drive pulley which is located above the drive disc is keyed to the engine crankshaft. A short V-belt runs from this primary pulley to the upper pulley on the intermediate spindle. A longer V-belt connects the lower pulley on the intermediate spindle to the blade pulley on the blade shaft, driving the cutting blade.

Two idler pulleys are used in the blade drive system as illustrated below. A blade brake applied to the short belt (rear) stops the blade. The brake is applied by the control lever.

As the mower pan is disassembled, examine rods and suspension assembly for damage or distortion, for bent or misshapened rods, bearings or bushings which are damaged or worn, dry bearings, and shafts which are gouged or ringed.

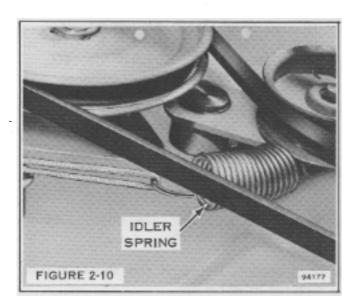


SERVICE BULLETIN REFERENCES ..... 11-27



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# MODELS 9301, 9302, 9302E, 9303E, 9600, 9601 ONLY MOWER PAN DISASSEMBLY



#### **REAR BELT REMOVAL**

Disconnect spark plug lead. Remove battery, (electric start models only). Remove rear cover. Remove belt keeper (Figure 2-11); tighten tilt (knurfing) bar bolts. Stand mower on tilt (knurfing) bar.



SAFETY WARNING

SECURE TO WALL TO PREVENT THE MOWER FROM TIPPING OR FALLING.

Roll belt off the top intermediate pulley. Pull belt between drive disc and drive roller.

Reassemble in reverse order of disassembly.

#### **IDLER ARM REMOVAL**

Remove belt. Remove belt pulley. Remove and replace idler arm. (See Figure 2-9.)

#### PAN REMOVAL

Remove belt, and bell arm shoulder bolts. Remove front pan suspension bar shoulder bolts. Pan can now be removed from mower.

#### FRONT BELT REMOVAL

Disconnect spark plug lead.

Remove belt guard; remove idler spring (Figure 2-10).

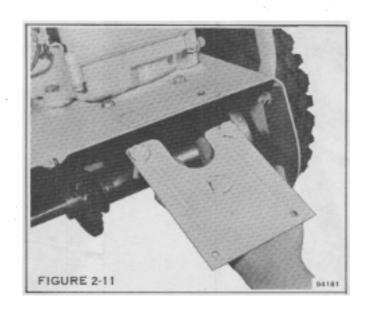


NOTE

Use a rope as shown on Figure 2-10 when removing idler spring.

Remove belt.

Reassemble in reverse order of disassembly.



#### **BLADE BRAKE ADJUSTMENT**

When the blade control lever is placed in the "off" position, an adjustable leaf spring connected to the bell arm and hub assembly is forced against the drive belt preventing the blade from rotating.

The blade brake leaf spring should be adjusted to obtain blade stoppage in not less than (4) four or more than (6) six seconds with engine operating at 3600 RPM.

To obtain proper blade brake tension:

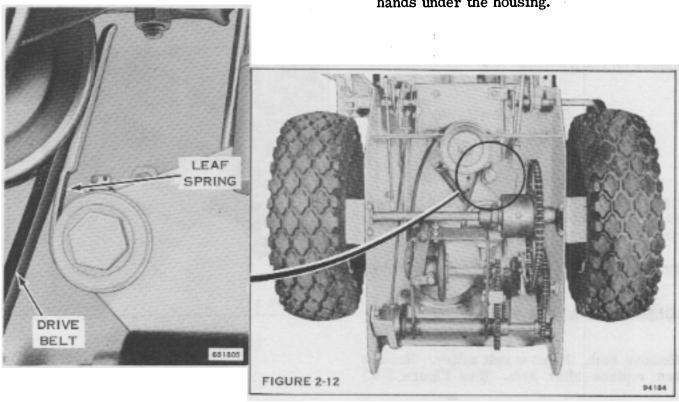
Disconnect spark plug lead. Remove battery, (electric start models only.)

Stand mower on tilt (knurfing) bar.

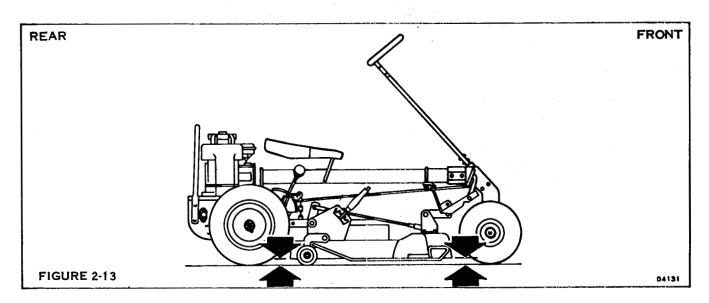
# **A** SAFETY WARNING

BLADE NUT MUST BE TIGHT BEFORE ADJUSTING BLADE BRAKE TENSION. SECURE MOWER TO PREVENT TIPPING OR FALLING.

- 1. Use a right angle screwdriver to loosen the lock screw on the blade brake leaf spring. See Figure 2-12.
- 2. Move the spring in or out until desired position is obtained.
- 3. Tighten lock screw securely. Lower mower back on wheels.
- 4. Start engine, letting it run about (2) two minutes to warm up.
- 5. Place blade control lever in "off" position. Check blade stoppage by visually observing drive pulley. DO NOT place hands under the housing.

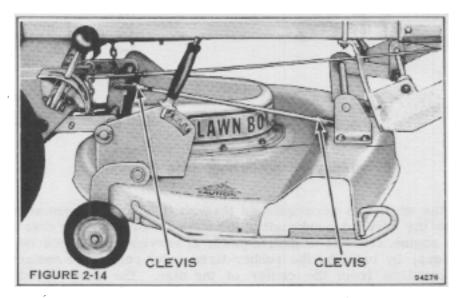


#### PAN TILT ADJUSTMENT - 26" & 30" MODELS



- 1. Locate the mower on a flat level surface such as a driveway, sidewalk, garage floor, etc.
- 2. Place the height adjustment lever in the middle setting.
- 3. Rotate the blade until the cutting edge is facing the front of the mower and measure the distance from the ground to the tip of the cutting edge of the blade. See Figure 2-13.
- 4. Rotate the blade 180° and measure (from rear of pan) the distance from the ground

- to the tip of the cutting edge of the blade. See Figure 2-13.
- 5. The mower pan tilt is correct if the measurement obtained in step 4 is 1/4 inch higher than the measurement obtained in step 3.
- 6. The pan tilt may be adjusted by removing the cotter pin on one end of the tilt adjust rod, loosen the jam nut on the clevis and turn the rod in or out of the clevis until the required tilt is reached. Secure clevis with jam nut. See Figure 2-14.
- 7. See page 11-54 and check for bent blade.

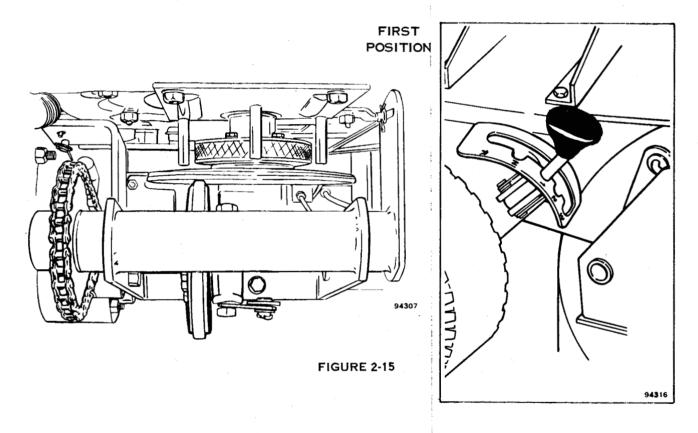


# SECTION 4 THEORY OF OPERATION

#### INTRODUCTION

The Lawn-Boy Riding Mower is powered by a vertical shaft four-cycle gasoline engine mounted on the rear of the machine. The vertical crankshaft of the engine drives both the wheels and the cutting blade, with the speed of the forward motion determined by the Speed Selector Lever which provides three forward speeds, a reverse, and a neutral position. The speed of the cutting blade on the mower is determined by the revolutions per minute of the engine. The throttle allows varying speeds of the engine up to a maximum of 3600 rpm.

Because of the selective controls of the Rider, it is possible to drive the machine without the cutting blade rotating, to drive the wheels slowly while the cutting blade and engine are at full 3600 rpm for maximum cutting in heavy growth, and to regulate from the driver's seat many combinations of speed and cutting heights.

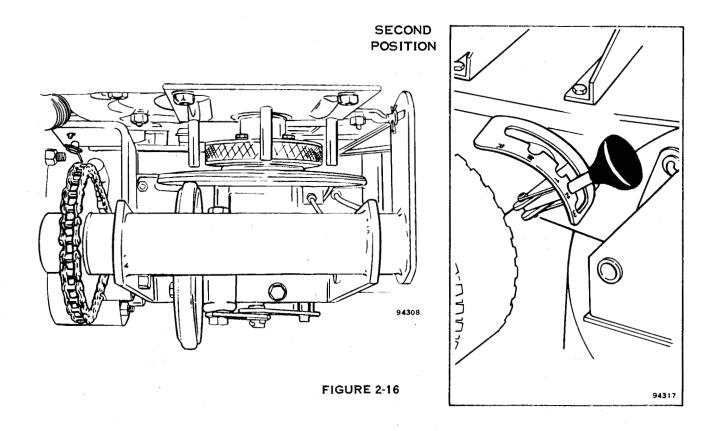


#### POWER FOR DRIVING THE WHEELS

The driving of the wheels is accomplished through the use of a large aluminum drive disc which is keyed to the vertical crankshaft of the engine. Because this disc always rotates at the speed of the engine, transfer of motive power at varying speeds is accomplished through the use of linkages, by bringing the rubber-tired drive roller into contact with the disc at three different positions from the center of the disc. The linear speed of any point on a wheel is highest when the point is at the rim and slowest at the hub. The first position

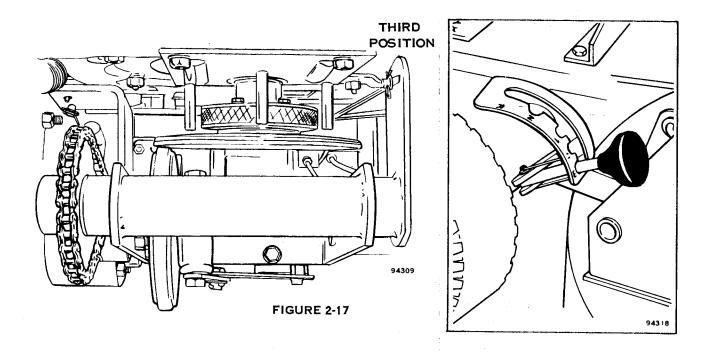
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shown, Figure 2-15, is nearest the center and is the slowest speed, or First. The second position shown, Figure 2-16, produces a higher speed, or Second, and the third position, Figure 2-17, near the rim of the disc produces the highest speed, or Third. In third position, the Rider will travel at approximately 6 mph. It is also characteristic of a rotating disc to transmit power in either direction, depending upon which side of the disc is brought into contact with the drive roller. The drive roller is shown, Figure 2-18, in contact with the disc on the opposite side of center. Note that the drive roller is quite close to the center for low-speed, safe backing. In neutral position, Figure 2-19, the drive roller is not in contact with the drive disc.

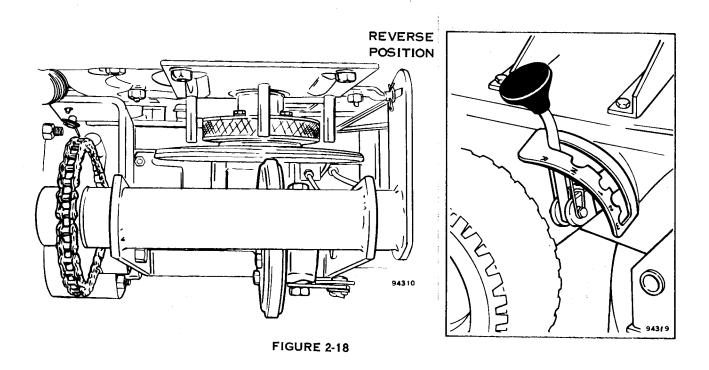


The use of the large aluminum driving disc and the rubber-tired drive roller offer an advantage in that power can be transmitted to the wheel and speeds changed without the use of a clutch. The drive roller slides smoothly across the face of the turning disc, making it easy to start, change speeds, or go into reverse without clutching. The Rider does, however, provide a clutch to prevent engine choking out during sudden stops when it is not possible to shift the speed selector, and when parking the machine and shifting into gear when the engine is not running. Depressing the clutch lifts the drive roller from contact with the disc and prevents damage to the drive roller as it passes across the motionless driving disc.

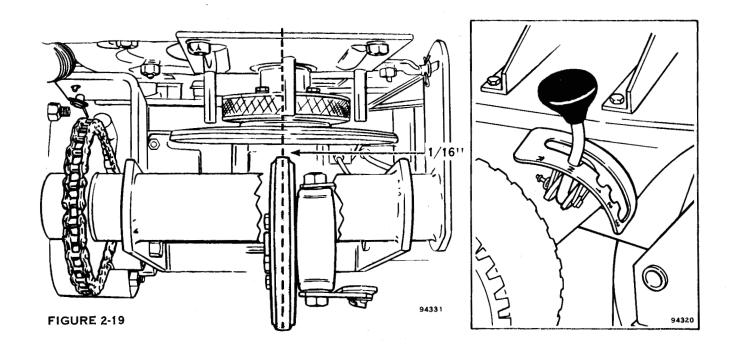
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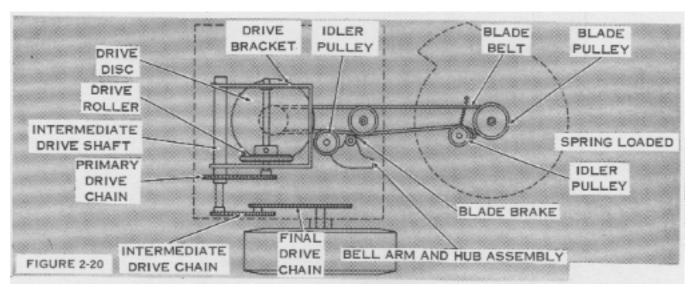


Inherent in the driving system of disc and drive roller making sudden contact is a tendency to lurch or buck when the machine is started from a dead stop. To make smoother starts possible, a series of sprockets and chains transmits the motive power from the drive roller to the wheels. In Figure 2-20 is shown the smooth transmission of power as the sprocket on the drive roller shaft turns a primary chain connected to the sprocket on the intermediate



driveshaft. The sprocket on that shaft, in turn drives an intermediate chain which drives a sprocket on the final drive spindle. The dual sprocket on the final drive spindle drives a final drive chain on the big sprocket mounted on the wheel axle to move the wheels. This combination of sprockets and chains reduces starting torque and absorbs the shock and lurching of starting.

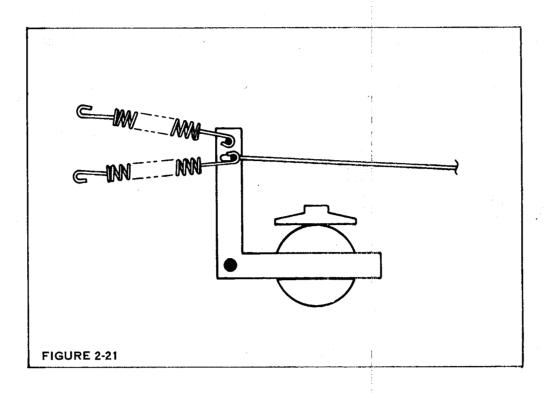




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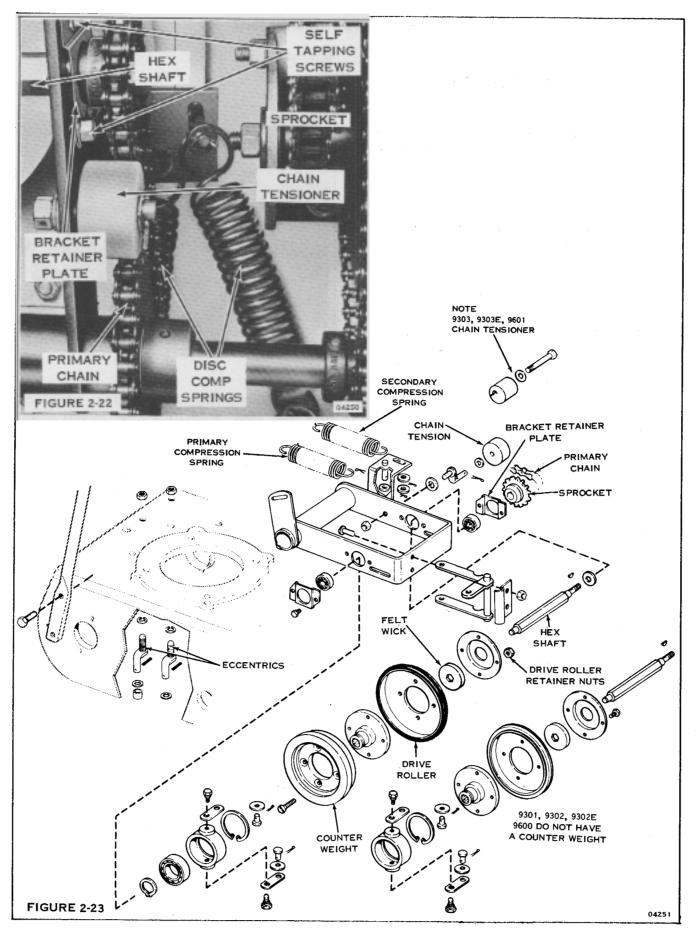
To eliminate drive roller slippage and to assure smooth starts, a system of two disc compression springs is employed. When the speed selector lever is placed in gear, the primary disc compression spring creates initial drive roller pressure against the drive disc. Momentarily, the drive roller is allowed to slip, eliminating quick "jumpy" starts. The secondary disc compression spring then goes into effect supplying additional disc pressure to propel the unit. (See Figure 2-21.)





9301, 9302, 9302E, 9600 have a single disc compression spring; 5 inch roller. Theory is the same.

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#### PRIMARY DRIVE SERVICING

# DISC COMPRESSION SPRING REMOVAL

Disconnect spark plug lead; remove battery, (electric start models only). Remove rear cover.

Remove both disc compression springs.

Models 9301, 9302, 9302E, and 9600 have single disc compression spring.



NOTE

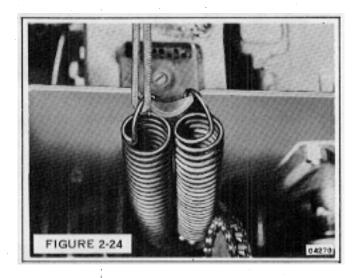
The springs are not identical--tag one as inside; the other as outside. Remove the springs with a rope. (See Figure 2-24.)

#### RUBBER DRIVE ROLLER SERVICE

Disconnect spark plug lead; remove battery, (electric start models only,) stand mower on tilt (knurfing) bar.

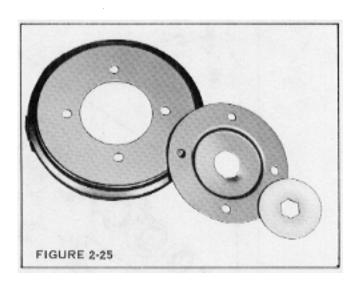
Remove chain tensioner on primary drive chain. (See Figure 2-22.) There will be enough slack to lift the chain off the hexshaft sprocket.

Place speed selector in reverse. Remove four nuts securing drive roller to roller hub. Remove the two screws securing hexshaft bearing retainer plate and remove hexshaft and bearing.



Before reinstalling drive roller, wash felt wick and apply a small amount of petroleum jelly to it (Figure 2-25.) Periodic inspection of the rubber roller and periodic lubrication of the felt oiler pad on the drive roller are the only regular maintenance operations on the drive roller. The rubber portion of the drive roller may crack, chip, or wear, but will be satisfactory as long as there are no large pieces broken out.

After reassembly, adjust the drive roller. See Drive Roller Adjustment.



#### **DRIVE ASSEMBLY ADJUSTMENTS**

#### DRIVE ROLLER TRAVEL - HORIZONTAL

Disconnect spark plug lead; remove battery, (electric start models only,) stand mower on tilt (knurfing) bar.

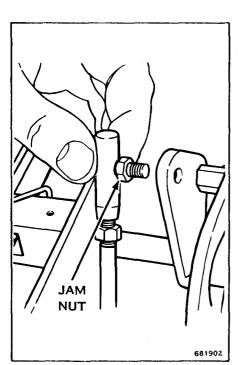
The cast iron bearing carrier of the drive roller assembly must be in contact with the extended threaded ends of the screws holding the hex shaft bearing retainers to the drive bracket with the shift lever placed in the full reverse position (Figure 2-26.) This will allow the drive roller to move across the face of the drive disc as the operator shifts through the three forward speeds or reverse. The drive roller must be readjusted whenever a new roller is installed. To obtain the correct adjustment proceed as follows:

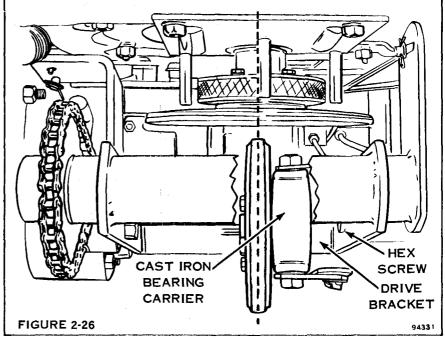
- 1. Place speed selector lever in "reverse." Loosen jam nut on speed control rod. (Figure 2-26.)
- 2. Remove nut securing ball joint stud to bell arm assembly.

- 3. Turn ball joint onto the rod to lengthen travel—off rod to shorten travel (Figure 2-26.) Proper adjustment does not necessarily put the drive roller on center line of drive disc when shift lever is in neutral.
- 4. When proper adjustment is made, attach ball joint to the bell arm assembly and tighten nut securely. Tighten jam nut up against the ball socket.
- 5. This is necessary to retain correct rear speed.

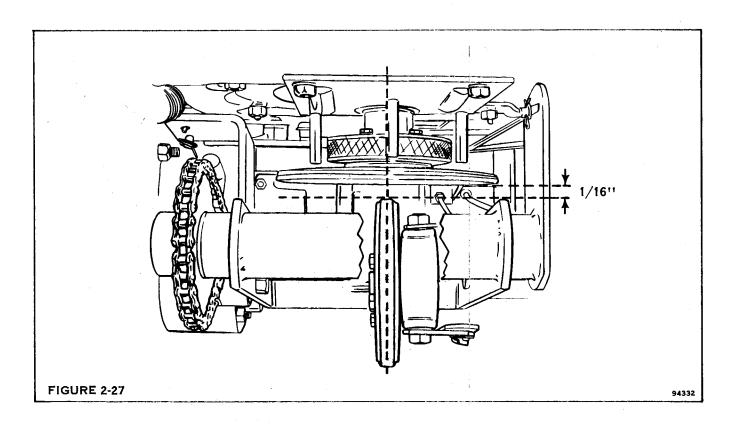


Inspect the drive disc closely. If the surface is polished the rubber drive roller will slip. Remove polish finish by rubbing in a circular pattern with sand paper or emery cloth.





SERVICE BULLETIN REFERENCES .....



#### DRIVE ROLLER ADJUSTMENT-VERTICAL ALIGNMENT

When the speed selector lever is placed in neutral position, the drive roller disengages from the drive disc by use of various linkages. Proper clearance between drive disc and drive roller is 1/16 inch with speed selector lever in neutral. See Figure 2-27. This assures the operator of a positive neutral position and performs a secondary braking action by halting the chain movement to the rear wheels.

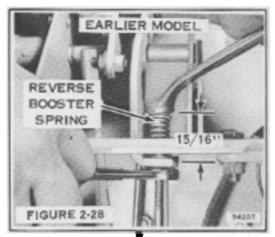
To obtain the proper 1/16 inch clearance proceed as follows:

- 1. Place speed selector lever in neutral position.
- 2. Stand mower on knurfing bar to make adjustment.

See page 11-41 for steps 3, 4, and 5 for models 9301, 9302, 9302E, 9600. See page 11-42 for steps 3, 4, and 5 for models 9303, 9303E, 9601.

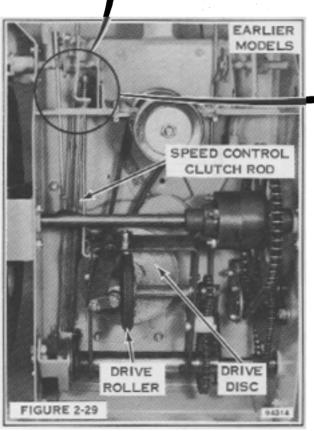
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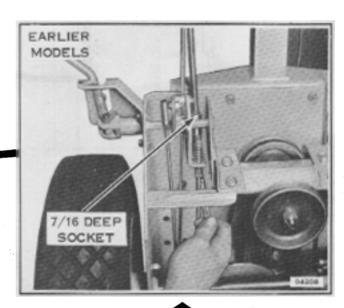
# MODELS 9301, 9302, 9302E, 9600 ONLY





3. Tighten upper reverse booster spring nut until spring is compressed to 15/16 inches. See Figures 2-28 and 2-29.



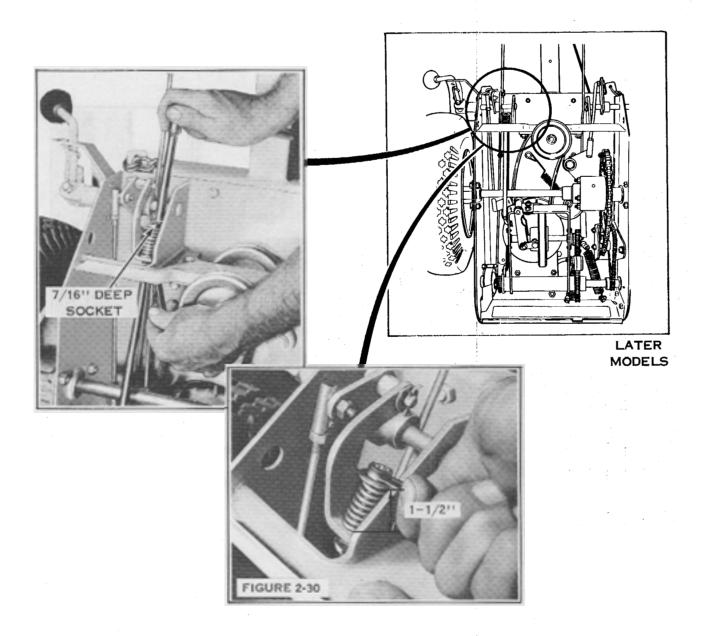


- 4. Tighten or loosen upper nut on speed control clutch rod to obtain 1/16 inch clearance between drive roller and disc.
- 5. Tighten remaining jam nuts.

SERVICE BULLETIN REFERENCES

# MODELS 9303, 9303E, 9601 ONLY

- 3. Tighten upper reverse booster spring nut until spring is compressed 1 1/2". See Figure 2-30.
- 4. Tighten or loosen upper nut on speed control clutch rod to obtain 1/16 inch clearance between roller and disc.
- 5. Tighten remaining jam nuts.

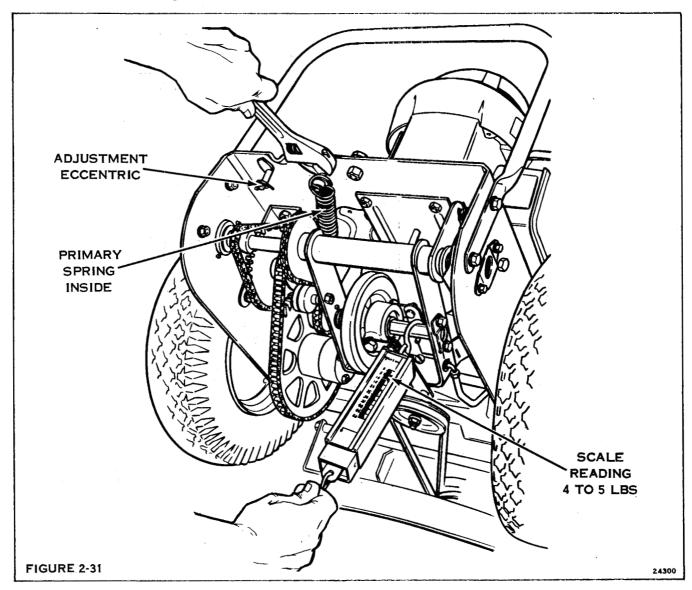


1-42 ..... SERVICE BULLETIN REFERENCES

#### DRIVE ROLLER ADJUSTMENT - SPRING TENSION

- A. Primary (inside) Disc Compression Spring Adjustment
  - 1. Place mower in horizontal position and remove rear cover.
  - 2. Place speed selector lever in second gear. Do not depress clutch pedal.
  - 3. Remove secondary (outside) spring.
  - 4. Attach spring scale to hex shaft. While pulling downward on scale, rotate primary (inside) adjustable eccentric until spring scale reads 4 to 5

- lbs., pressure and the drive roller breaks contact with the drive disc. See Figure 2-31.
- 5. Replace secondary disc compression spring.
- B. Secondary (Outside) Disc Compression Spring Adjustment (Figure 2-32).
  - 1. Attach spring scale to hex shaft. While pulling downward on scale rotate secondary (outside) adjustable eccentric until the spring scale reads



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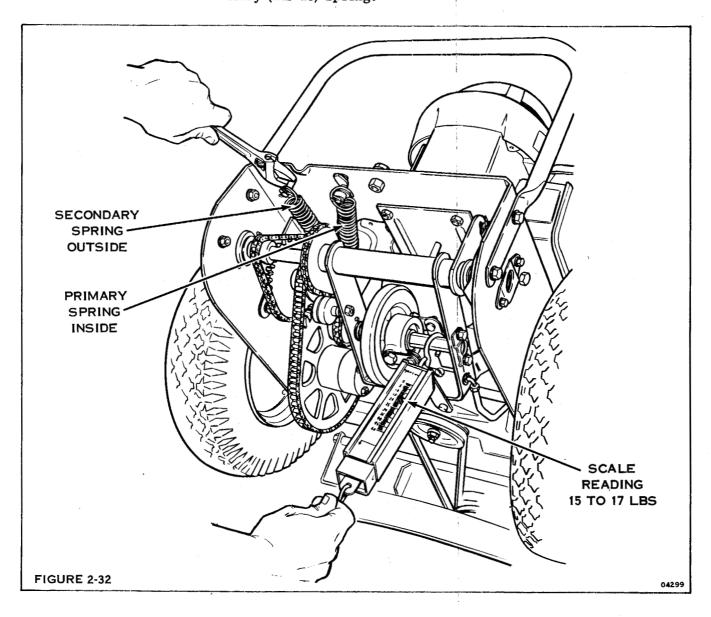
15 to 17 lbs., pressure and the drive roller breaks contact with the drive disc.

2. Place speed selector lever in neutral position and re-check the 1/16 inch clearance between drive disc and drive roller.



#### NOTE

If drive roller slippage is observed, slightly increase the spring tension on the secondary (outside) spring. If quick "jumpy" starts are observed, decrease spring tension on the primary (inside) spring.



11-44 ..... SERVICE BULLETIN REFERENCES

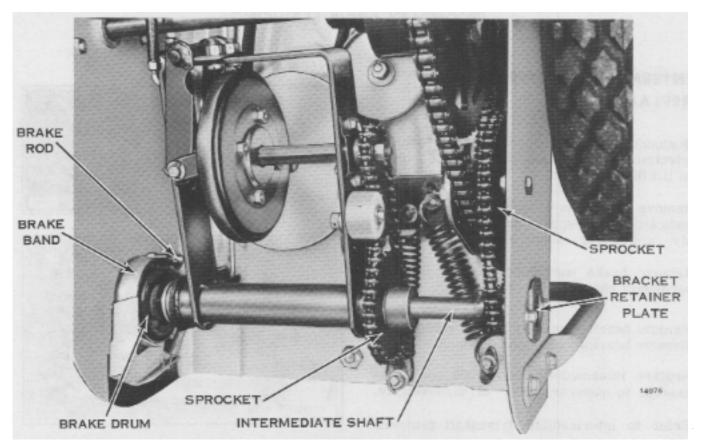
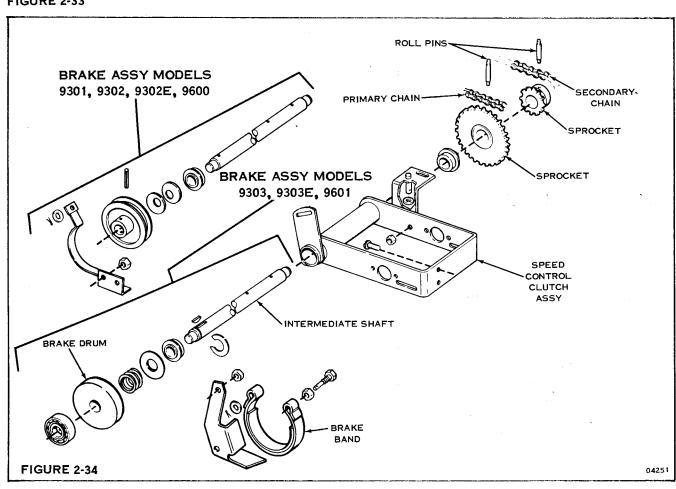


FIGURE 2-33



SERVICE BULLETIN REFERENCES

#### SECONDARY DRIVE SERVICING

# INTERMEDIATE DRIVESHAFT REPLACEMENT

Disconnect spark plug lead; remove battery, (electric start models only,) stand mower on tilt (knurfing) bar.

Remove disc compression springs and all rods attached to speed control clutch assembly, and lower clutch assembly to floor.

Remove brake band from chasis. Remove secondary chain (Figure 2-35.)

Remove bearing retainer plates from chasis. Remove bearings and driveshaft.

Replace intermediate driveshaft and reassemble in reverse order of disassembly.

Refer to intermediate driveshaft removal.

Sprockets are secured to shaft with drive pins. Remove drive pins.

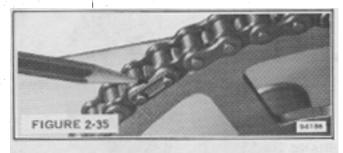
# CHAIN ADJUSTMENT ON PRIMARY AND FINAL DRIVE ONLY

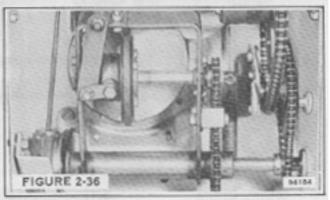
Disconnect spark plug lead; remove battery (electric start models only) stand mower on tilt (knurfing) bar.

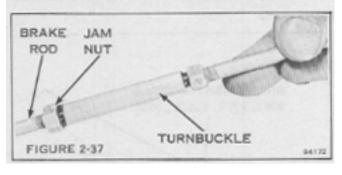
Loosen nylon chain guide eccentric nut slightly and rotate into or away from chain to attain proper chain tension. Correct chain tension is 1/4 inch deflection with light thumb pressure.

#### WHEEL BRAKE ADJUSTMENT

The friction type brake system consists of a foot pedal, brake rod, brake and drum assembly. As foot brake is depressed, a reinforced band on brake assembly is forced against the drum. This action brakes the intermediate drive, thus stopping wheel rotation. To prevent damage to the drive roller, the clutch and brake must be applied



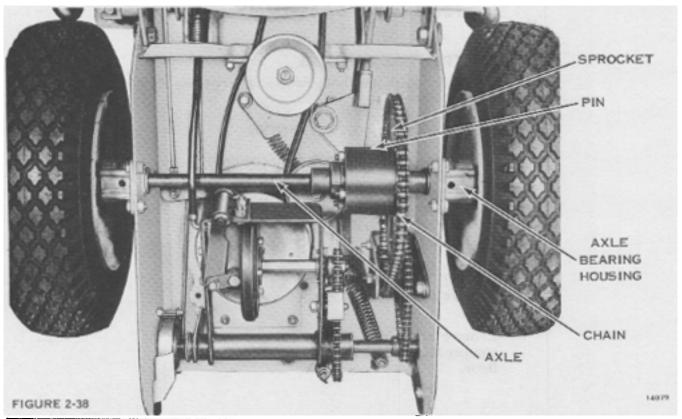


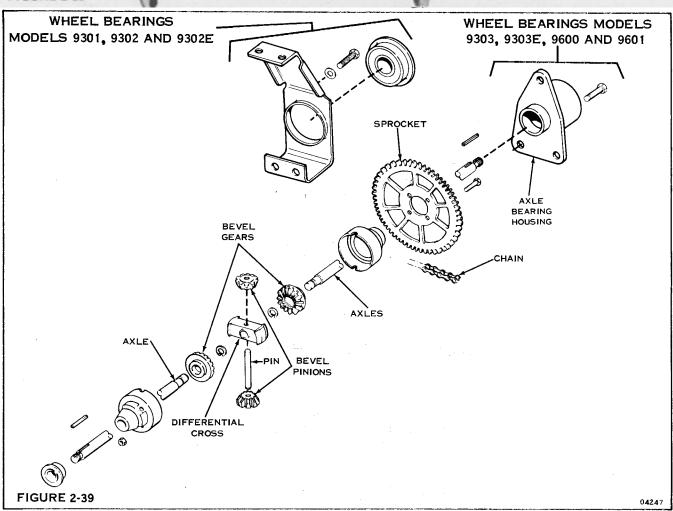


simultaneously when making a stop. To adjust brake proceed as follows:

- 1. Remove cotter pin and washers from the brake rod at foot pedal. (Figure 2-36) and remove rod.
- 2. Loosen jam nuts at turnbuckle. See (Figure 2-37). Screw brake rod in or out of turnbuckle for proper adjustment which is obtained when slight pressure on the pedal encounters resistance after 1/2 inch pedal travel.
- 3. Tighten jam nuts at turnbuckle and reassemble brake rod to the foot pedal.

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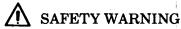


SERVICE BULLETIN REFERENCES

#### FINAL DRIVE DISASSEMBLY

#### DIFFERENTIAL REMOVAL

Disconnect spark plug lead; remove battery (electric start models only).



WHEN STANDING MOWER ON END, ALWAYS ANCHOR IT TO PREVENT FROM TIPPING OR FALLING. ALSO PLACE THROTTLE IN "STOP" POSITION AND DISCONNECT SPARK PLUG LEAD.

Stand mower on tilt (knurfing) bar. Remove rear belt.

Remove rods from carrier bracket and disc compression springs. Lower bracket to floor.

Remove chain, rear wheels and axle bearings.

Place blade control lever in "on" position and slide differential out.

NOTE

Be careful not to mar the drive disc with the differential sprocket teeth when removing the differential.

Reassemble in reverse order of disassembly. After reassembly place blade control lever in off position.

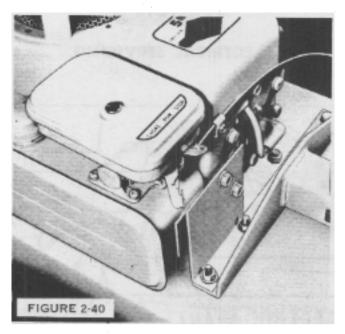
#### DIFFERENTIAL DISASSEMBLY

Remove differential. (See above.)

Remove four bolts holding differential and sprocket together. Differential halves can then be separated. Inspect parts, etc., (Figure 2-39.

When reassembling, pack differential with 3 ounces of Lawn-Boy "A" grease.

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#### **ENGINE REMOVAL**

Disconnect spark plug lead and throttle linkage. Remove rear drive belt.

For Model 9601 also remove 2 cylinder head bolts attached to support mounting plate (Figure 2-40.)

Remove engine mounting bolts and lift engine from mounting frame.



NOTE

Do not tip engine on its side without removing oil and fuel.

#### DRIVE DISC REMOVAL

Remove engine. Remove four allen head screws securing disc to drive pulley.

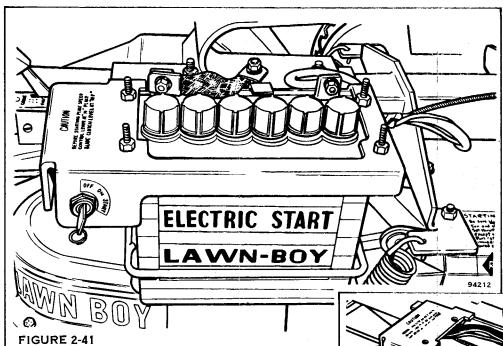
#### DRIVE PULLEY REMOVAL

Remove engine and drive disc. Remove single bolt securing drive pulley to keyed crankshaft and remove pulley.

# **MODELS 9302E, 9303E ONLY**

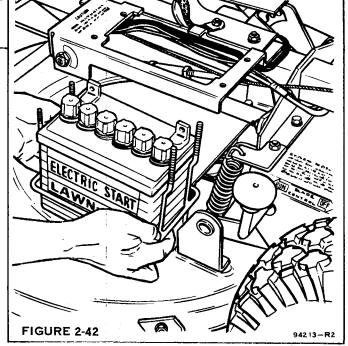
### **SECTION 5**

#### **ELECTRICAL SERVICING**



Follow these procedures to remove battery.

- 1. Remove two wing screws and remove battery cover.
- 2. Disconnect battery leads.
- 3. Remove four nuts securing battery carrier to battery frame and remove battery. See Figure 2-41.

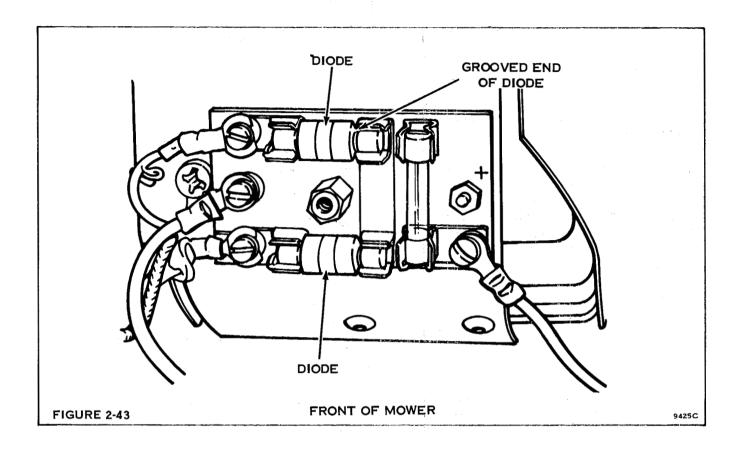


# A SAFETY WARNING

DO NOT ALLOW BATTERY TERMINALS TO MAKE CONTACT WITH THE BATTERY FRAME. THIS COULD RESULT IN FIRE OR PERSONAL INJURY (BURNS). SEE FIGURE 2-42.

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### **MODELS 9302E, 9303E ONLY**



#### INSTALLING NEW DIODES

- 1. Remove diode cover.
- 2. Insert new diodes into spring clips. DO NOT FORCE. The groove in the one end of the diode matches a ridge in the clip. See Figure 2-43.

#### INSTALLING REPLACEMENT FUSE

AG AMP 250 Volt Fuse is inserted into clip receptacle in vertical position - either end up.

SAFETY WARNING
TO PREVENT SPARKS OR PERSONAL INJURY (BURNS) REMOVE
DIODES IF MOWER IS TO BE OPERATED WITH BATTERY REMOVED OR BATTERY LEADS DISCONNECTED.

SERVICE BULLETIN REFERENCES

#### SECTION 6

### PREVENTIVE MAINTENANCE

To obtain peak performance and long life from the engine the air cleaner must be serviced regularly. Under normal conditions an air cleaner should be serviced every 10 hours of operation, oftener, if under dusty condition. To service air cleaner, pour old oil from bowl. Wash element thoroughly in solvent and dry. Clean bowl and refill with same type of oil used in crankcase. See engine Owner's Manual.

#### CRANKCASE OIL

Check oil level - See Owners' Manual.

#### **BLADE CARE**

A blade will naturally become dull with use. It can be quickly sharpened with a few strokes of a file or sharpening stone. SHARPEN ONLY THE CUTTING EDGE. A blade that is not straight or properly balanced can cause engine vibration; loss of engine power. Excessive vibration can lead to engine (usually crankshaft) damage if allowed to continue. Imbalance can be caused by uneven wear or impact damage. Minor imbalance can usually be corrected by grinding or filing the heavy end; if not, the blade should be replaced.

#### LUBRICATION

A. Lubricate front wheel bearings with Automotive Chassis Lubricant or Lawn-Boy "A" Grease. Using conventionaal grease gun apply lubricant until grease is observed at end of the bearing surface.

B. Lubricate friction points whenever needed. All bushings are oil impregnated and do not require oil. All ball bearings are sealed with lubricant and therefore do not require periodic lubrication.

#### **TIRES**

Recommended pressure for front wheels on Models 9601, 9303, 9303E is 15-17 lbs. Rear pressure for the same models is 22-25 lbs.

#### BATTERY

Check battery fluid level every 10 hours of operation.

Add distilled water to fill ring.

Check battery for state of charge. When specific gravity of battery falls below 12.25, recharge battery.

In storage; Battery should be charged fully once per month.



SAFETY WARNING

DO NOT CHARGE AT A RATE EXCEEDING 4 AMPS.

DO NOT allow tools to make contact with the battery terminals when installing or servicing battery.

Remove diodes if mower engine is to be operated with battery removed or battery leads disconnected.

DO NOT tip mower up on tilt (knurfing) bar without removing battery.

DO NOT operate mower with battery cover removed.

#### **DIFFERENTIAL**

Check differential every 50 hours. Fill to 3 ounce capacity with multi-purpose automotive grease.

#### FRICTION DRIVE

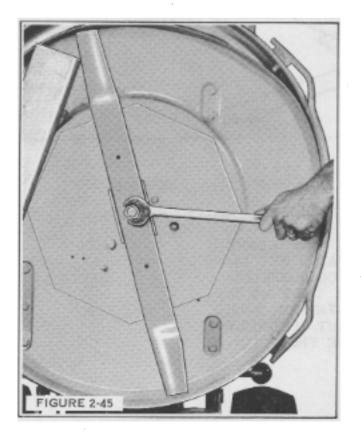
Check rubber drive roller - drive disc clearance every 30 hours.

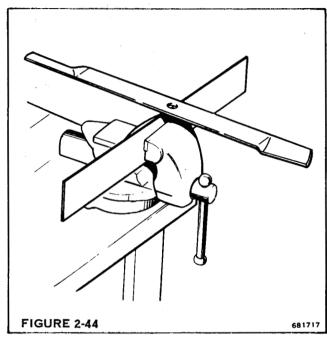
#### BLADE

# ⚠ SAFETY WARNING

DISCONNECT THE SPARK PLUG WIRE AND PLACE THE BLADE CONTROL LEVER IN THE "OFF" POSITION.

Always keep blade sharp and balanced. A bent blade will cause vibration and loss of power. See Figure 2-44. Check balance and grind heavy end until proper balance is attained.





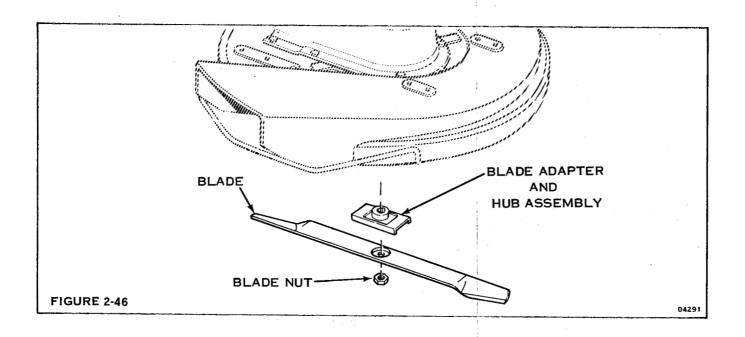
#### **BLADE REMOVAL**

- 1. Disconnect spark plug.
- 2. Lift mower on end.
- 3. Block blade with a piece of 2 x 4 to prevent it's turning. Figure 2-45.
- 4. Remove blade nut.
- 5. Retorque blade nut to 50 ft. lbs.

SERVICE BULLETIN REFERENCES .....

#### BENT BLADE

Tilt the mower up on the knurfing bar and place a straightedge (yardstick) across the bottom of the pan. Rotate the blade until one end is alighed with the straightedge and measure the gap between the blade and the straightedge. Rotate the blade until the other end is under the same point of the straightedge and measure this gap. If the gaps are not within 1/4" of each other, the blade, blade spindle, blade adaptor or deck may be damaged or distorted. Remove blade and place on flat surface. If blade tips are not within 1/4" replace.



# A SAFETY WARNING

WHEN INSTALLING THE BLADE MAKE SURE ALL PARTS ARE INSTALLED IN THE CORRECT SEQUENCE IN WHICH THEY WERE REMOVED. SEE FIGURE 2-46. TIGHTEN BLADE NUT SECURELY TO PREVENT BLADE FROM COMING LOOSE.

11-54 ..... SERVICE BULLETIN REFERENCES
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